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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,511	04/12/2004	Simon C. Borst	100.2503	3058

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EXAMINER

BALAOING, ARIEL A

ART UNIT	PAPER NUMBER
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2683

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/822,511

Applicant(s)

BORST ET AL.

Examiner

Ariel Balaoing

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**– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 7, 8, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by TAYLOE (US 5,095,500).

Regarding claim 1, TAYLOE discloses a communication system, comprising: a mobile unit operative to transmit periodic channel condition indicator signals (column 4:lines 8-21), each indicator signal including information relating to a signal to noise ratio being experienced by the mobile unit (column 2:lines 39-68; column 4:lines 8-61; column 5:lines 6-16); and a base station operative to transmit data to the mobile unit (column 2:lines 39-68; column 4:lines 8-61), the base station being operative to receive the indicator signals from the mobile unit and generate a channel condition prediction reflecting a channel condition expected to be experienced by the mobile unit (column 2:lines 39-68; column 4:lines 8-61; column 6:line 41-column 7:line 16; Figure 2 and 3), the channel condition prediction being based on a balanced estimate using the most recent channel condition indicator value and a mean of past channel condition indicator values (column 4:lines 8-61; column 6:line 41-column 7:line 16; Figures 2 and 3).

Regarding claim 7, TAYLOE discloses a base station for communicating with a plurality of mobile units (column 2:lines 39-68; column 4:lines 8-61; column 5:lines 6-

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16), comprising: an air interface for receiving transmissions from the mobile unit, periodic ones of the transmissions including a channel condition indicator providing information relating to a signal to noise ratio being experienced by the mobile unit (column 2:lines 39-68; column 4:lines 8-61; column 5:lines 6-16); and a predictor for receiving channel condition indicator values and generating future channel condition predictions reflecting a future channel condition expected to be experienced by each mobile unit (), each of the future channel condition predictions being based on a balanced estimate using the most recent channel condition indicator value for the mobile unit and a mean of past channel condition indicator values for the mobile unit (column 4:lines 8-61; column 6:line 41-column 7:line 16; Figures 2 and 3).

Regarding claim 8, TAYLOE discloses a predictor for generating a channel condition prediction for each of a plurality of mobile units (column 4:lines 8-61; column 6:line 41-column 7:line 16; Figures 2 and 3), comprising: a data interface module for retrieving channel condition indicators (column 4:lines 8-61; column 6:line 41-column 7:line 16; Figures 2 and 3), each channel condition indicator reflecting past channel conditions experienced by one of the plurality of mobile units (column 4:lines 8-61; column 6:line 41-column 7:line 16; Figures 2 and 3); and a computation module for computing a mean channel condition indicator value for each mobile unit (column 4:lines 8-61; column 6:line 41-column 7:line 16; Figures 2 and 3), based on a mean of channel condition indicators associated with the mobile unit and for generating a channel condition prediction based on a balanced estimate using the most recent

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channel condition indicator value and a mean of past channel condition indicator values (column 4:lines 8-61; column 6:line 41-column 7:line 16; Figures 2 and 3).

Regarding claim 11, TAYLOE discloses a method of channel condition prediction (column 4:lines 8-61; column 6:line 41-column 7:line 16; Figures 2 and 3), comprising the steps of: receiving and storing a succession of channel condition indicators from each of a plurality of mobile units (column 2:lines 39-68; column 4:lines 8-61; column 5:lines 6-16), each channel condition indicator received from a mobile unit reflecting a channel condition reflected by the mobile unit (column 2:lines 39-68; column 4:lines 8-61; column 5:lines 6-16); and generating a channel condition prediction for a time of interest for each mobile unit (column 4:lines 8-61; column 6:line 41-column 7:line 16; Figures 2 and 3), each channel condition prediction reflecting a balanced estimate using the most recent channel condition indicator value and a mean of past channel condition indicator values (column 4:lines 8-61; column 6:line 41-column 7:line 16; Figures 2 and 3).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
6. Claims 2, 3, 9, 10, 12, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over TAYLOE (US 5,095,500) in view of LARSSON et al (US 5,241,690) and AGRAWAL et al (US 2003/0142647).

Regarding claims 2, 9, and 12, see the rejections of the parent claim concerning the subject matter these claims are dependent upon. However, TAYLOE does not expressly disclose wherein each channel condition prediction assigns a greater emphasis to the mean of past channel condition indicator values during rapidly changing channel conditions. LARSSON discloses wherein each channel condition prediction assigns a greater emphasis to the mean of past channel condition indicator values during rapidly changing channel conditions (column 5:line 34-column 6:line 60). Therefore it would have been obvious to a person of ordinary skill in the art at the time

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the invention was made to modify TAYLOE in this way, as taught by LARSSON, as a rapid changing environment can lead to inaccurate measurement results of the total system. However, the combination of TAYLOE and LARSSON does not expressly disclose wherein each channel condition prediction assigns a greater emphasis to the most recent channel condition indicator values during more slowly changing channel conditions. AGRAWAL discloses wherein each channel condition prediction assigns a greater emphasis to the most recent channel condition indicator values during more slowly changing channel conditions (paragraph 54). Therefore it would have been obvious to a person of ordinary skill in the art to modify the combination of TAYLOE and LARSSON in this way, as taught by AGRAWAL, as changes within a stable region are more likely to be a result of increased/decreased traffic conditions.

Regarding claims 3 and 13, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, TAYLOE in view of AGRAWAL does not expressly disclose wherein the channel condition prediction is computed by assigning a weight to the most recent channel condition indicator value and the mean of past channel condition indicator values, the relative weights being influenced by the rate of change in the channel condition. LARSSON discloses wherein the channel condition prediction is computed by assigning a weight to the most recent channel condition indicator value and the mean of past channel condition indicator values, the relative weights being influenced by the rate of change in the channel condition (column 5:line 34-column 6:line 60).

Regarding claim 10, see the rejections of the parent claim concerning the subject matter. TAYLOE further discloses wherein the computation module employs the mean channel condition indicator value, the most recent value and additional recent values to generate the channel condition prediction (column 4:lines 8-61; column 6:line 41-column 7:line 16; Figures 2 and 3).

7. Claims 4, 5, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over TAYLOE (US 5,095,500) in view of LARSSON et al (US 5,241,690) and AGRAWAL et al (US 2003/0142647), and further in view of DENT (5,894,473).

Regarding claim 4 and 14, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of TAYLOE, LARSSON and AGRAWAL does not expressly disclose wherein the weights assigned to the most recent channel condition indicator value and the mean channel condition indicator value depend on a gradient of past channel condition indicator values. DENT discloses wherein the weights assigned to the most recent channel condition indicator value and the mean channel condition indicator value depend on a gradient of past channel condition indicator values (column 8:line 60-column 9:line 29). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of TAYLOE, LARSSON and AGRAWAL in this way, as taught by DENT, as establishing a weighting factor according to a linear function can be used to determine improving conditions within a cell.

Regarding claim 5, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of TAYLOE,



AGRAWAL and DENT does not expressly disclose wherein the mobile unit transmits a channel condition indicator to the base station at each timeslot, a timeslot being a time period during which communication takes place, as defined by a standard under which the system operates, and wherein the base station receives a channel condition indicator value during each timeslot, the base station maintaining an average of channel condition indicator values, the base station computing a channel condition prediction during each timeslot, each channel condition prediction reflecting an expected channel condition expected to prevail at the mobile unit a specified number of timeslots in the future from the most recent channel condition. LARSSON discloses wherein the mobile unit transmits a channel condition indicator to the base station at each timeslot, a timeslot being a time period during which communication takes place, as defined by a standard under which the system operates, and wherein the base station receives a channel condition indicator value during each timeslot, the base station maintaining an average of channel condition indicator values, the base station computing a channel condition prediction during each timeslot, each channel condition prediction reflecting an expected channel condition expected to prevail at the mobile unit a specified number of timeslots in the future from the most recent channel condition (column 3:line 62-column 4:line 7; column 4:line 47-column 5:line 3; column 5:line 34-column 6:line 60).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of TAYLOE, AGRAWAL and DENT in this way, as taught by LARSSON, this provides analysis of data according to a specific time of day.

Regarding claim 6, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. TAYLOE further discloses comprising a plurality of mobile units, each transmitting periodic channel condition indicators to the base station, wherein the base station computes periodic channel condition predictions for each mobile unit (column 5:lines 6-52). However, the combination of TAYLOE, LARRSON and AGRAWAL does not expressly disclose wherein the base station uses the future channel condition predictions to select a mobile unit for service and to select a codeword size for transmission to each mobile unit. DENT discloses wherein the base station uses the future channel condition predictions to select a mobile unit for service and to select a codeword size for transmission to each mobile unit (abstract; column 8:line 45-column 9:line 45).

Regarding claim 15, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. TAYLOE further discloses further comprising a step of managing data transmission using the channel condition predictions (column 2:lines 39-68).

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

YOUNG et al (US 5,760,941) – Method for performing optical code division multiple access using bipolar codes

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ariel Balaoing whose telephone number is (571) 272-

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7317. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 AM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (571) 272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ariel Balaoing *ab*  
Art Unit 2683  
Patent Examiner

AB

*[Signature]* *11-23-05*  
\_\_\_\_\_  
STEPHEN D'AGOSTA  
PRIMARY EXAMINER.